

PENDING CLAIMS
Application No. 10/046,568
Attorney Docket No. 05725.1018-00000
Filed: January 16, 2002

49. A structured nail polish composition comprising:

at least one liquid organic phase comprising at least one volatile organic solvent, the liquid organic phase being structured by at least one first polymer having a weight-average molecular weight of less than or equal to 100,000 and comprising:

a) a polymer backbone comprising hydrocarbon-based repeating units, said units comprising at least one hetero atom in said backbone, and

b) at least one fatty chain containing from 6 to 120 carbon atoms and chosen from at least one pendent fatty chain and at least one terminal fatty chain, wherein the at least one fatty chain is linked to the hydrocarbon-based units and is optionally functionalized,

wherein said at least one volatile organic solvent and said at least one first polymer are present in the nail polish composition in a combined amount effective to give a structured nail polish composition.

50. The composition according to Claim 49, wherein the weight-average molecular weight of the at least one first polymer is less than 50,000.

51. The composition according to Claim 49, wherein the at least one hetero atom is a nitrogen atom.

52. The composition according to Claim 49, wherein the hydrocarbon-based units comprising at least one hetero atom are chosen from amide groups.

53. The composition according to Claim 49, wherein the at least one fatty chain is present in an amount ranging from 40% to 98% of the total combined number of the hydrocarbon-based repeating units and the at least one fatty chain.

54. The composition according to Claim 53, wherein the at least one fatty chain is present in an amount ranging from 50% to 95% the total combined number of the hydrocarbon-based repeating units and the at least one fatty chain.

55. The composition according to Claim 49, wherein said at least one fatty chain is chosen from at least one pendent fatty chain, and further wherein the at least one pendent fatty chain is linked directly to at least one of said at least one hetero atom.

56. The composition according to Claim 49, wherein the polymer backbone of the at least one first polymer comprises at least one amide repeating unit in said backbone.

57. The composition according to Claim 49, wherein the weight-average molecular weight of the at least one first polymer ranges from 2,000 to 20,000.

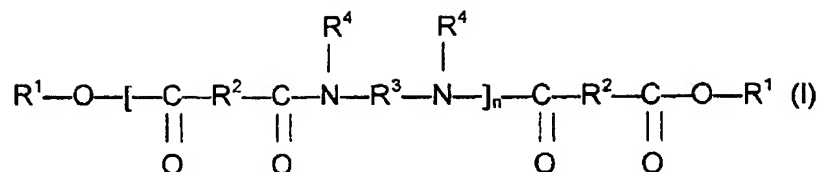
58. The composition according to Claim 57, wherein the weight-average molecular weight of the at least one first polymer ranges from 2,000 to 10,000.

59. The composition according to Claim 49, wherein the at least one terminal fatty chain is linked to the skeleton via at least one bonding group.

60. The composition according to Claim 49, wherein the at least one bonding group is an ester group.

61. The composition according to Claim 49, wherein the at least one fatty chain comprises from 12 to 68 carbon atoms.

62. The composition according to Claim 49, wherein the at least one first polymer is chosen from polymers of formula (I) below:



wherein:

n is a number of amide units such that the ester groups are present in an amount ranging from 10% to 50% of the total number of ester and amide groups;

R^1 is independently chosen from alkyl and alkenyl groups containing at least 4 carbon atoms;

R^2 is independently chosen from C_4 to C_{42} hydrocarbon-based groups, wherein 50% of the R^2 groups are chosen from C_{30} to C_{42} hydrocarbon-based groups;

R^3 is independently chosen from organic groups containing at least 2 carbon atoms, hydrogen, and optionally at least one atom chosen from oxygen and nitrogen atoms; and

R^4 is independently chosen from hydrogen, C_1 to C_{10} alkyl groups, and a direct bond to R^3 or to another R^4 , such that the nitrogen atom to which R^3 and R^4 are both attached forms part of a heterocyclic structure defined by R^4-N-R^3 , wherein at least 50% of the R^4 groups are hydrogen.

63. The composition according to Claim 62, wherein R^1 is a C_{12} to C_{22} alkyl group.

64. The composition according to Claim 62, wherein R^2 is a C_{30} to C_{42} hydrocarbon-based group.

65. The composition according to Claim 49, wherein the at least one first polymer is present in an amount ranging from 0.01% to 60% by weight, relative to the total weight of the composition.

66. The composition according to Claim 65, wherein the at least one first polymer is present in an amount ranging from 0.5% to 30% by weight, relative to the total weight of the composition.

67. The composition according to Claim 66, wherein the at least one first polymer is present in an amount ranging from 1% to 20% by weight, relative to the total weight of the composition.

68. The composition according to Claim 49, wherein said organic phase comprises at least one volatile organic solvent exhibiting mean Hansen solubility parameters dD , dP and dH at 25°C, wherein dD , dP and dH satisfy the following conditions:

$$15 (\text{J}/\text{cm}^3)^{1/2} \leq dD \leq 19 (\text{J}/\text{cm}^3)^{1/2}$$

$$dP \leq 10 (\text{J}/\text{cm}^3)^{1/2}; \text{ and}$$

$$dH \leq 10 (\text{J}/\text{cm}^3)^{1/2}.$$

69. The composition according to Claim 68, wherein $dP \leq 5 (\text{J}/\text{cm}^3)^{1/2}$.

70. The composition according to Claim 68, wherein $dH \leq 9 (\text{J}/\text{cm}^3)^{1/2}$.

71. The composition according to Claim 68, wherein dD , dP and dH obey

the relationship

$$\sqrt{4(17 - dD)^2 + dP^2 + dH^2} < L$$

wherein L is equal to $10 \text{ (J/cm}^3\text{)}^{1/2}$.

72. The composition according to Claim 71, wherein L is equal to $9 \text{ (J/cm}^3\text{)}^{1/2}$.

73. The composition according to Claim 49, wherein the composition further comprises at least one second film-forming polymer.

74. The composition as claimed in Claim 73, wherein the at least one second film-forming polymer is chosen from cellulose polymers, polyurethanes, acrylic polymers, vinyl polymers, polyvinylbutyrals, alkyd resins, resins resulting from aldehyde condensation products, and arylsulfonamide-epoxy resins.

75. The composition according to Claim 49, wherein the at least one second film-forming polymer is present in an amount ranging from 0.1% to 60% by weight, relative to the total weight of the composition.

76. The composition according to Claim 75, wherein the at least one second film-forming polymer is present in an amount ranging from 2% to 40% by weight, relative to the total weight of the composition.

77. The composition according to Claim 76, wherein the at least one second film-forming polymer is present in an amount ranging from 5% to 25% by weight, relative to the total weight of the composition.

78. The composition according to Claim 49, wherein the at least one volatile organic solvent is chosen from esters having from 4 to 8 carbon atoms and alkanes having from 6 to 10 carbon atoms.

79. The composition according to Claim 49, wherein the at least one volatile organic solvent is chosen from ethyl acetate, n-propyl acetate, isobutyl acetate, n-butyl acetate, and heptane.

80. The composition according to Claim 49, wherein the at least one volatile organic solvent is chosen from branched C₈-C₁₆ alkanes, and branched C₈-C₁₆ esters.

81. The composition according to Claim 49, wherein the volatile organic solvent is chosen from C₈-C₁₆ isoparaffins, and isododecane.

82. The composition according to Claim 49, wherein the at least one volatile organic solvent is present in an amount ranging from 20% to 98% by weight, relative to the total weight of the composition.

83. The composition according to Claim 82, wherein the at least one volatile organic solvent is present in an amount ranging from 30% to 90% by weight, relative to the total weight of the composition.

84. The composition according to Claim 83, wherein the at least one volatile organic solvent is present in an amount ranging from 40% to 85% by weight, relative to the total weight of the composition.

85. The composition according to Claim 49, wherein the liquid organic phase additionally comprises at least one nonvolatile oil.

86. The composition according to Claim 49, wherein the liquid organic phase is present in an amount ranging from 5 to 99% by weight, relative to the total weight of the composition.

87. The composition according to Claim 86, wherein the liquid organic phase is present in an amount ranging from 20 to 75% by weight, relative to the total weight of the composition.

88. The composition according to Claim 49, further comprising at least one additive chosen from coloring materials, antioxidants, preservatives, fragrances, fillers, waxes, neutralizing agents, cosmetic or dermatological active principles, dispersing agents, spreading agents, and sunscreens.

89. The composition according to Claim 49, wherein the composition is in the form of a stiff gel.

90. The composition according to Claim 49, wherein the composition is in the form of an anhydrous stick.

91. The composition according to Claim 49, wherein the composition is in the form of a stick with a hardness ranging from 30 to 300 g, measured by the cheesewire method.

92. A stick nail polish composition comprising:

a liquid organic phase comprising at least one volatile organic solvent and at least one first polymer with a weight-average molecular weight of less than or equal to 100,000 comprising:

a) a polymer backbone comprising hydrocarbon-based repeating units, said units comprising at least one hetero atom in said backbone, and

b) at least one fatty chain containing from 6 to 120 carbon atoms and chosen from at least one pendent fatty chain and at least one terminal fatty chain, wherein the at least one fatty chain is linked to the hydrocarbon-based units and is optionally functionalized,

wherein said at least one volatile organic solvent and said at least one first polymer are present in the stick nail polish composition in a combined amount effective to give a structured stick nail polish composition.

93. The stick nail polish composition according to Claim 92, wherein the hydrocarbon-based units comprising at least one hetero atom are chosen from amide groups.

94. A cosmetic composition comprising:

an organic phase and at least one first polymer with a weight-average molecular weight of less than or equal to 100,000 comprising:

a) a polymer backbone comprising hydrocarbon-based repeating units, said units comprising at least one hetero atom in said backbone, and

b) at least one fatty chain containing from 6 to 120 carbon atoms and chosen from at least one pendent fatty chain and at least one terminal fatty chain, wherein the at least one fatty chain is linked to the hydrocarbon-based units and is optionally functionalized,

and a second additional film-forming polymer, the organic phase comprising at least one volatile organic solvent exhibiting mean Hansen solubility parameters dD , dP and dH at 25°C which satisfy the following conditions:

$$15 \text{ (J/cm}^3\text{)}^{1/2} \leq dD \leq 19 \text{ (J/cm}^3\text{)}^{1/2}$$

$$dP \leq 10 \text{ (J/cm}^3\text{)}^{1/2}; \text{ and}$$

$$dH \leq 10 \text{ (J/cm}^3\text{)}^{1/2}.$$

95. A cosmetic composition according to claim 94, wherein said at least one first polymer is a polyamide polymer and said hydrocarbon-based repeating units are

amide repeating units.

96. A nail polish composition comprising:

a liquid organic phase, at least one first polymer with a weight-average molecular weight of less than or equal to 100,000 comprising:

a) a polymer backbone comprising hydrocarbon-based repeating units, said units comprising at least one hetero atom in said backbone, and

b) at least one fatty chain containing from 6 to 120 carbon atoms and chosen from at least one pendent fatty chain and at least one terminal fatty chain, wherein the at least one fatty chain is linked to the hydrocarbon-based units and is optionally functionalized,

and a second additional film-forming polymer, the organic phase comprising at least one volatile organic solvent exhibiting mean Hansen solubility parameters dD , dP and dH at 25°C which satisfy the following conditions:

$$15 \text{ (J/cm}^3\text{)}^{1/2} \leq dD \leq 19 \text{ (J/cm}^3\text{)}^{1/2}$$

$$dP \leq 10 \text{ (J/cm}^3\text{)}^{1/2}; \text{ and}$$

$$dH \leq 10 \text{ (J/cm}^3\text{)}^{1/2}.$$

97. A nail polish composition according to claim 96, wherein said at least one first polymer is a polyamide polymer and said hydrocarbon-based repeating units are amide repeating units.

98. A cosmetic process for making up or nontherapeutically treating the nails of human beings, comprising:

applying to the nails of human beings an effective amount of a composition comprising:

a liquid organic phase comprising at least one volatile organic solvent and at least one first polymer with a weight-average molecular weight of less than or equal to 100,000 comprising:

- a) a polymer backbone comprising hydrocarbon-based repeating units, said units comprising at least one hetero atom in said backbone, and
- b) at least one fatty chain containing from 6 to 120 carbon atoms and chosen from at least one pendent fatty chain and at least one terminal fatty chain, wherein the at least one fatty chain is linked to the hydrocarbon-based units and is optionally functionalized,

wherein said at least one volatile organic solvent and said at least one first polymer are present in the composition in a combined amount effective to give a structured composition.

99. A method of producing a nail polish composition in the form of stick, comprising:

a liquid organic phase comprising at least one volatile organic solvent and at least one first polymer with a weight-average molecular weight of less than or equal to 100,000 comprising:

- a) a polymer backbone comprising hydrocarbon-based repeating units, said units comprising at least one hetero atom in said backbone, and
- b) at least one fatty chain containing from 6 to 120 carbon atoms and chosen from at least one pendent fatty chain and at least one terminal fatty chain, wherein the at least one fatty chain is linked to the hydrocarbon-based units and is optionally functionalized,

wherein said at least one volatile organic solvent and said at least one first polymer are present in the nail polish composition in a combined amount effective to give a structured nail polish composition.

100. The method according to Claim 99, wherein said stick has a hardness ranging from 30 to 300 g, measured by the cheesewire method.

101. The method according to Claim 99, wherein the at least one first polymer is a polyamide having end groups in which the end groups comprise at least one ester group.

102. The method according to Claim 101, wherein the at least one ester group comprises a hydrocarbon-based chain comprising from 10 to 42 carbon atoms.

103. The method according to Claim 99, wherein said organic phase comprises at least one volatile organic solvent exhibiting mean Hansen solubility parameters dD , dP and dH at 25°C, wherein dD , dP and dH satisfy the following conditions:

$$15 \text{ (J/cm}^3\text{)}^{1/2} \leq dD \leq 19 \text{ (J/cm}^3\text{)}^{1/2}$$

$$dP \leq 10 \text{ (J/cm}^3\text{)}^{1/2}; \text{ and}$$

$$dH \leq 10 \text{ (J/cm}^3\text{)}^{1/2}.$$

104. The method according to Claim 99, wherein the at least one volatile organic solvent is chosen from ethyl acetate, n-propyl acetate, isobutyl acetate, n-butyl acetate, and heptane.

105. The method according to Claim 99, wherein the composition comprises at least one second film-forming polymer.

519413

THIS PAGE BLANK (USPTO)